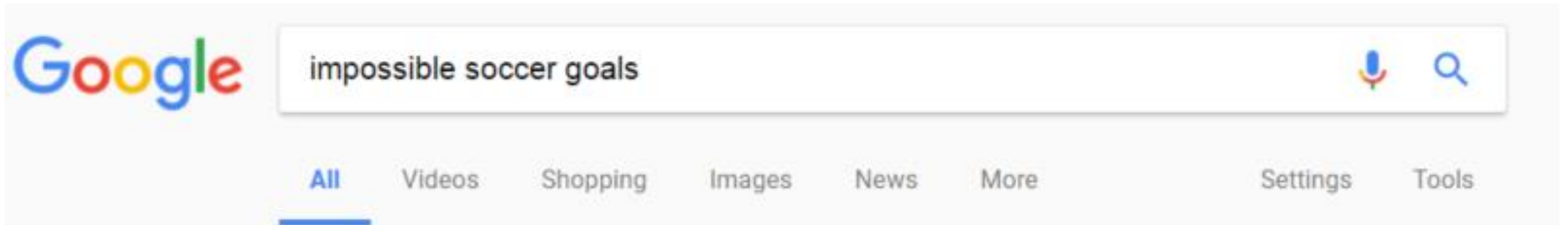


SIGCOMM 2017 Preview Session: Datacenter Traffic

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Microsoft Research



What are the most unexpected soccer goals?



What does searching the web mean?

How does a search engine decide which documents we really want?

Are we searching the web in real time?

How many web pages exist today?

Where is the web stored?

2004



A wide-angle photograph of a modern data center. The room is filled with rows of server racks, some of which are illuminated with blue light. The ceiling is high and features a complex network of pipes and structural beams. The floor is made of large, light-colored tiles. The overall atmosphere is industrial and high-tech.

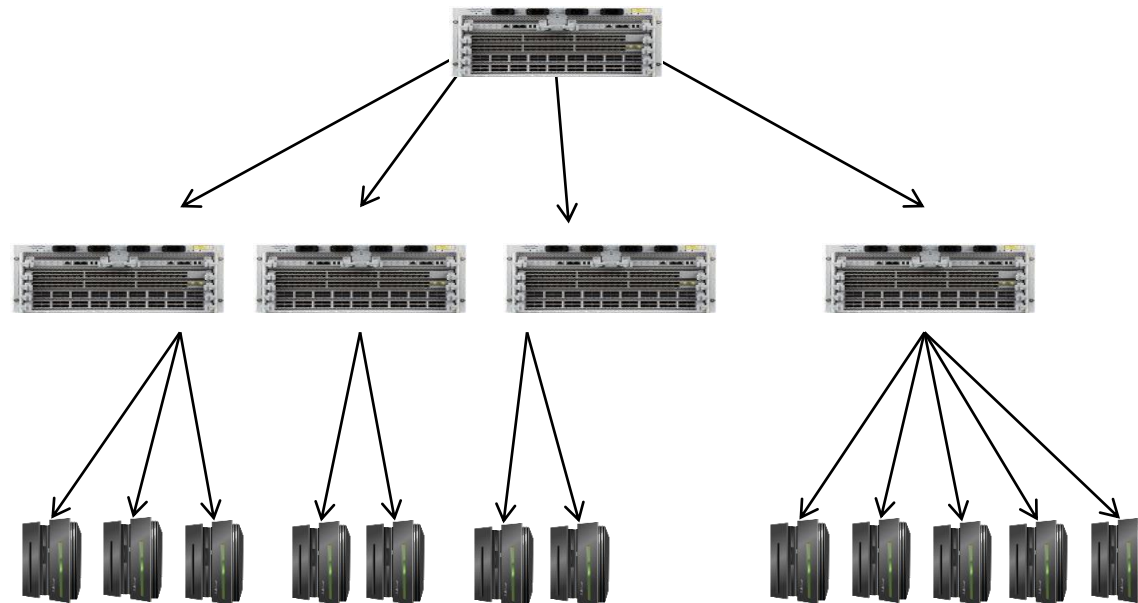
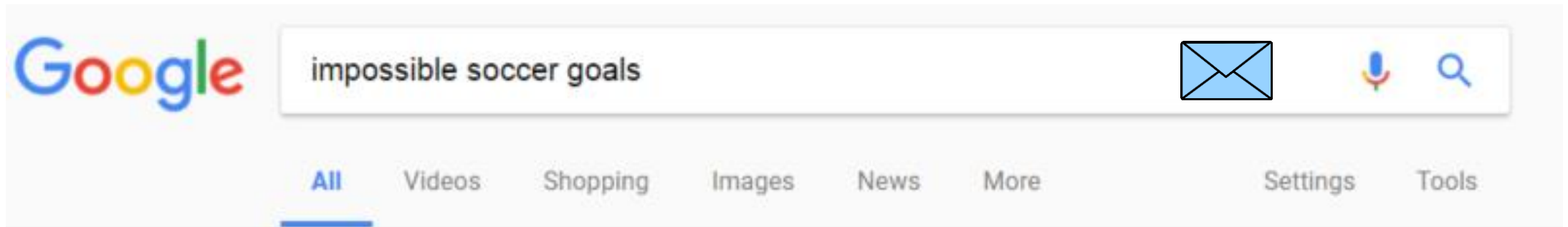
Data centers run the world!
Today's datacenter networks carry more
traffic than the entire core of the Internet

What factors matter when building/operating a data center?

High availability,
High efficiency,
Smart scalability,
Security



An orchestration between compute, storage, and networking working in concert





impossible soccer goals



All

Videos

Shopping

Images

News

More

Settings

Tools

Roberto Carlos impossible soccer goal explained. (Good ... - YouTube



<https://www.youtube.com/watch?v=6nHUCyNkezl> ▼

Apr 26, 2010 - Uploaded by Ddan Clanad

What would seem **impossible** to do. Carlos does with ease. There is a cool breakdown of the **goal**. This is ...

Images for impossible soccer goals



➔ [More images for impossible soccer goals](#)

[Report images](#)

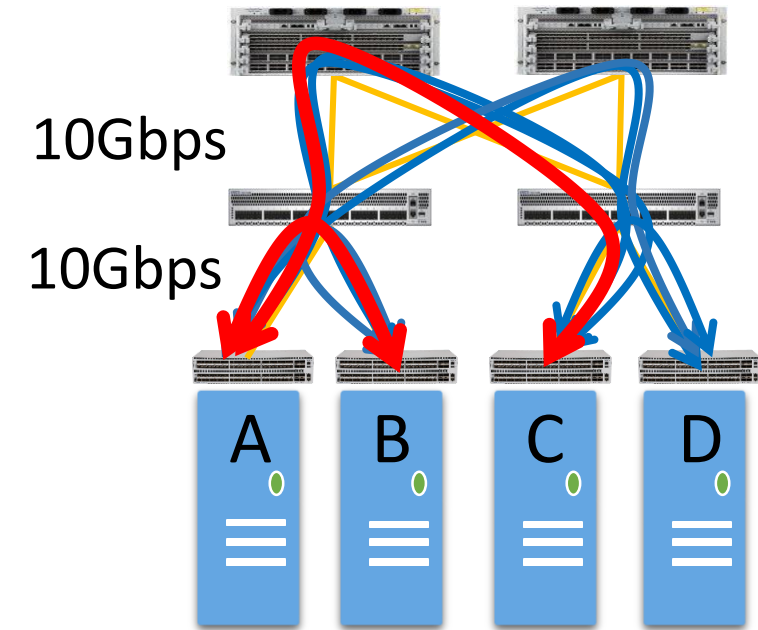
79:41
MAD 4 ROM 2

PAUL TRACY (BACK) FULLY RECOVERED

OAK

Data center traffic characteristics

- What do applications want?
 - High bandwidth (large flows)
 - Low latency (small flows)
- Traffic patterns are highly volatile
- Traffic patterns are unpredictable
- Two key characteristics
 - Most flows are small
 - Most bytes come from large flows



	A	B	C	D
A	0	3	3	3
B	3	0	3	3
C	3	3	0	3
D	3	3	3	0

demand matrix:
uniform and static

	A	B	C	D
A	0	6	6	0
B	0	0	0	0
C	0	0	0	0
D	0	12	0	0

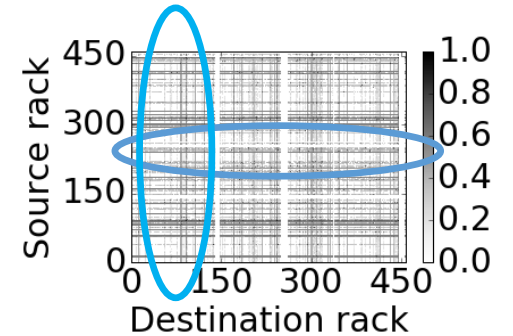
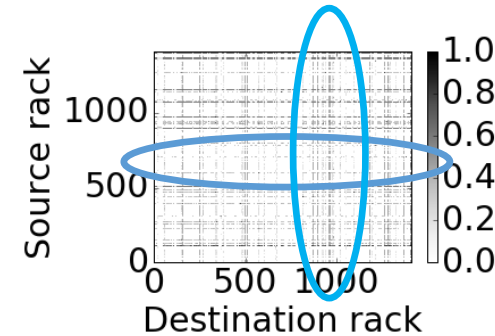
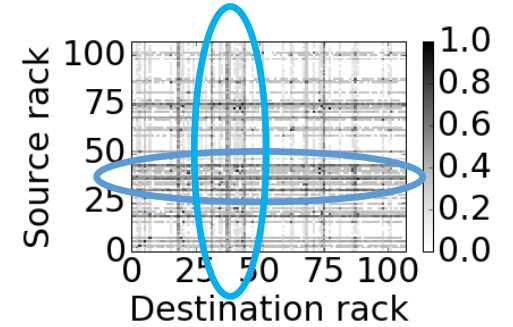
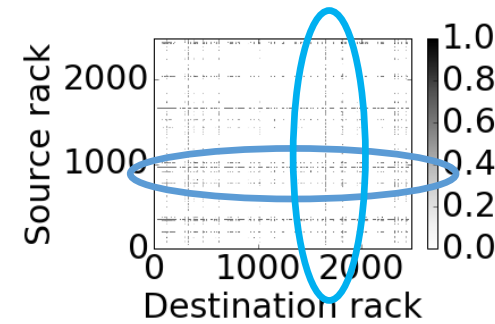
demand matrix:
skewed and dynamic

Data:

- 200K servers across 4 production clusters
- Cluster sizes: 100 -- 2500 racks

Observation:

- Many rack pairs exchange little traffic
- Only some hot rack pairs are active



smart load-balancing, congestion control, reconfigurable topologies